
MARSHALL COUNTY

(Marshall County Water Service Area Map)

- Estimated 1999 population of 30,000--80% on public water
- Estimated 2020 population of 32,000--89% on public water
- 430 miles of water lines, with plans for 120 additional miles
- Estimated funding needs for public water 2000-2005--\$2,175,000
- Estimated funding needs for public water 2006-2020--\$512,000

Marshall County had an estimated population of 30,045 (12,747 households) in 1999 with a projected population of 32,007 (14,568 households) in 2020. Over 80 percent of the county is served by public water, the remainder relying primarily on private domestic wells. About 1,330 new households will be placed on public water through line extensions in 2000-2020.

Estimated Costs - Proposed Projects, 2000-2005

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
MARSHALL								
CALVERT CITY MUNICIPAL WATER DEPARTMENT	2.0	18	51					51
NORTH MARSHALL W/D	14.7	197	381					381
JONATHAN CREEK W/D	18.3	118	476					476
BENTON WATER AND SEWER	64.5	813	1,267					1,267
TOTAL	99.4	1,146	2,175					2,175

Estimated Costs - Proposed Projects, 2006-2020

COUNTY/System		New Customers		Rehab	Source	Treatment	Tanks/ Pumps	Total
	Miles	Number	Cost in \$1000	in \$1000	in \$1000	in \$1000	in \$1000	in \$1000
MARSHALL								
JONATHAN CREEK W/D	19.7	188	512					512
TOTAL	19.7	188	512					512

PUBLIC WATER SYSTEMS

Marshall County is served by five community water systems--3 water districts, 2 municipal--and three non-community systems.

BENTON WATER AND SEWER SYSTEM

PWSID: 0790029
System Type: COMMUNITY
Owner Type: MUNICIPAL
Surface Source:

WATER SERVICE AREAS

MARSHALL COUNTY

Kentucky

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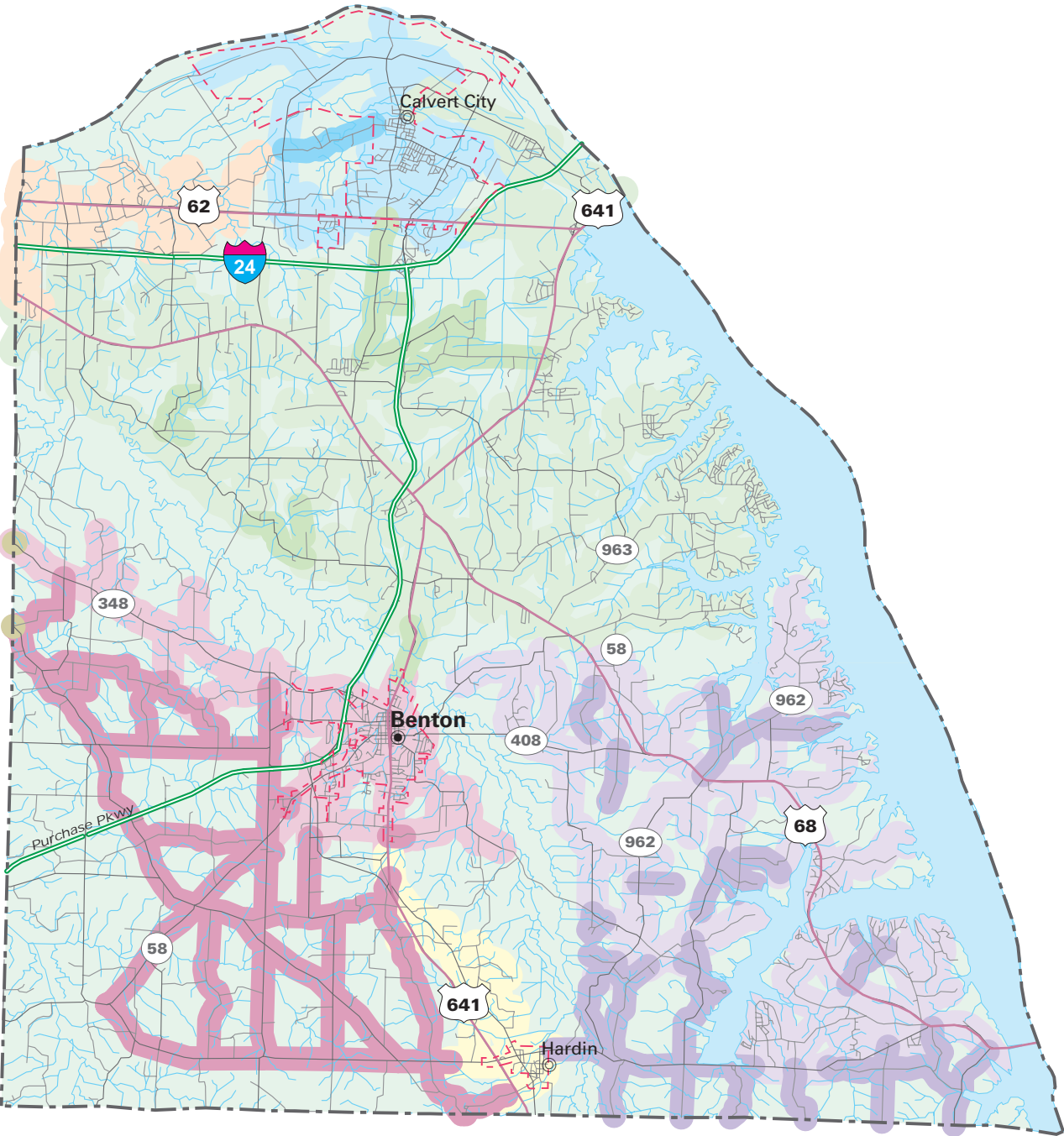
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WATER SERVICE STATUS BY OWNER

EXISTING SERVICE AREA	PROPOSED SERVICE AREA	
		SYMSONIA WATER DISTRICT
		REIDLAND WATER DISTRICT
		NORTH MARSHALL WATER DISTRICT #1
		JONATHAN CREEK WATER DISTRICT
		HARDIN WATER
		CALVERT CITY MUNICIPAL WATER DEPARTMENT
		BENTON WATER AND SEWER SYSTEM

Purchase Source:
Well Source: Yes
Sells Water to: HARDIN WATER
Treatment Plant Capacity (MGD): 2.00
Percent Daily Average Production: 40.00
Total Tank Storage Capacity (gallons): 1,000,000.00
Total Service Connections: 2,737.00
Number of Employees: 4.00
Treatment Operator Class: 2D
Distribution Operator Class: 3B
Customer Rate for 1,000 Gallons: Not available
O/M costs 1997: Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons): Not available
Water Sold 1997 (gallons): Not available
Unaccounted-for Water 1997 (%): Not available

The Benton Water and Sewer System currently has 2,737 customers and employs 4 fulltime employees. The system has three wells from which it withdraws 516,000 gallons. The treatment plant is rated for 2 million gallons a day. The city sells water to Hardin Water District. The city has two towers with a combined total storage capacity of 1 million gallons.

CALVERT CITY MUNICIPAL WATER DEPARTMENT

PWSID: 0790056
System Type: COMMUNITY
Owner Type: MUNICIPAL
Surface Source:
Purchase Source:
Well Source: Yes
Sells Water to:
Treatment Plant Capacity (MGD): 2.00
Percent Daily Average Production: 51.00
Total Tank Storage Capacity (gallons): 750,000.00
Total Service Connections: 1,260.00
Number of Employees: 4.00
Treatment Operator Class: 2D
Distribution Operator Class: 3A
Customer Rate for 1,000 Gallons: Not available
O/M costs 1997: Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons): Not available
Water Sold 1997 (gallons): Not available
Unaccounted-for Water 1997 (%): Not available

The department has 1,260 customers and has 4 fulltime employees. The department draws 1,250,000 gallons a day from three wells; it is treated at the plant which is rated for 2 million

gallons a day, operating at 51%. The department spends 50% on operation and maintenance.

HARDIN WATER

PWSID: 0790173
System Type: COMMUNITY
Owner Type: MUNICIPAL
Surface Source:
Purchase Source: CITY OF BENTON
Well Source:
Sells Water to:
Treatment Plant Capacity (MGD): 0.00
Percent Daily Average Production: 0.00
Total Tank Storage Capacity (gallons): 80,000.00
Total Service Connections: 500.00
Number of Employees: 4.00
Treatment Operator Class: 2D
Distribution Operator Class:
Customer Rate for 1,000 Gallons: Not available
O/M costs 1997: Not available
O/M costs per Service Connection: Not available
Net Revenue 1997: Not available
Total Water Produced 1997 (gallons): Not available
Water Sold 1997 (gallons): Not available
Unaccounted-for Water 1997 (%): Not available

The district has 500 customers and employs 4 fulltime individuals. The district currently purchases 100,000 gallons per day from Benton. The district has 80,000 gallons combined storage capacity from its two tanks. The district currently spends 56% of revenue on operation and maintenance.

NORTH MARSHALL WATER DISTRICT #1

PWSID: 0790319
System Type: COMMUNITY
Owner Type: WATER DISTRICT
Surface Source:
Purchase Source:
Well Source: Yes
Sells Water to:
Treatment Plant Capacity (MGD): 1.73
Percent Daily Average Production: 61.00
Total Tank Storage Capacity (gallons): 1,400,000.00
Total Service Connections: 4,499.00
Number of Employees: 7.00
Treatment Operator Class: 2D
Distribution Operator Class: 3B
Customer Rate for 1,000 Gallons: 2.93
O/M costs 1997: 535,770.00

O/M costs per Service Connection:.....	119.09
Net Revenue 1997:.....	149,303.00
Total Water Produced 1997 (gallons):.....	458,770,000.00
Water Sold 1997 (gallons):.....	364,727,000.00
Unaccounted-for Water 1997 (%):	15.76

The district has 4,499 customers and employs 7 individuals fulltime. The district has 7 wells from which 1,256,000 gallons a day is drawn and treated at one of the two treatment plants. The district has eight tanks for a combined storage capacity of 1,410,000 gallons. The district currently spends 54% of revenue on operation and maintenance.

JONATHAN CREEK WATER DISTRICT

PWSID:.....	0790216
System Type:.....	COMMUNITY
Owner Type:.....	WATER DISTRICT
Surface Source:.....	KENTUCKY LAKE
Purchase Source:	
Well Source:	Yes
Sells Water to:	
Treatment Plant Capacity (MGD):.....	2.00
Percent Daily Average Production:	40.00
Total Tank Storage Capacity (gallons):.....	150,000.00
Total Service Connections:	1,944.00
Number of Employees:.....	6.00
Treatment Operator Class:.....	2D
Distribution Operator Class:	3A
Customer Rate for 1,000 Gallons:.....	6.42
O/M costs 1997:.....	375,419.00
O/M costs per Service Connection:	193.91
Net Revenue 1997:.....	9,913.00
Total Water Produced 1997 (gallons):.....	166,177,000.00
Water Sold 1997 (gallons):.....	115,975,000.00
Unaccounted-for Water 1997 (%):	22.66

The district currently serves 1,944 customers and employs 6 people. The district withdraws 473,000 gallons from each of its two wells daily. The 2 million gallons treatment plant treats the water. The plant is operating at about 40% capacity. The district has a combined storage capacity of 350,000 gallons from its three towers. The district spends 62% of revenue on operation and maintenance.

OTHER SYSTEMS

SHAWNEE BAY RESORT

Shawnee Bay Resort is located in Marshall County. The system serves a population of 25 and has 1 service connection. The private, transient, non-community system has treatment capacity of 8,000 gallons per day. The water source is wells.

BEE SPRING LODGE

Bee Spring Lodge is located in Marshall County. The system serves a population of 25 and has 1 service connection. The private, transient, non-community system has treatment capacity of 8,000 gallons per day. The water source is wells.

SOUTHERN KOMFORT

Southern Komfort is located in Marshall County. The system serves a population of 400 and has 85 service connections. The private, transient, non-community system water source is wells.

PRIVATE DOMESTIC SYSTEMS

Almost 6,000 people in Marshall County rely on private domestic wells for their water supply.

GroundWater Resource in Marshall County are abundant with fair to good water quality. All areas of the county have the ability to produce water from drilled wells at reasonable depths in quantities sufficient for domestic use. Multiple zones of production are common throughout the county. Depths to upper most production is between 30 and 150 feet. A few wells obtain shallow perched water from gravel or alluvial deposits but these zones often will not yield sufficient water for an adequate domestic supply during periods of low rainfall, which is common in late summer and fall. In general, the chemical quality of the water is good, but water from some aquifers contains objectionable amounts of iron and manganese. Water from alluvium and limestone in this county is generally hard to very hard with moderate to high levels of dissolved solids with some limestone wells in the eastern part of the county containing minor amounts of hydrogen sulfide. Water from the unconsolidated sand and/or gravel aquifers are considered soft and slightly acidic with low dissolved solids.

Water quality generally is good except in areas where downward percolation of surface water and fluids from domestic sewage-disposal systems, and other sources of domestic or industrial pollution have contaminated the aquifer. In a few wells harmful amounts of nitrate have been detected. Ground water sometimes contains iron naturally in objectionable amounts from the deeper zones. In some formations with slightly acidic ground-water, a chemical reaction between the acidic ground-water and steel well casing and pump equipment will produce a high iron content in the water which is not naturally occurring.
